

**Cosden Oil and Chemical Co.  
SE-Chicago Super SAT-Site Review**

US EPA RECORDS CENTER REGION 5



Description

The Cosden site is an inactive chemical and plastic manufacturing facility located at 142nd Street and Paxton Avenue in Calumet City, Cook County, Illinois. The site occupies approximately 38 acres in an industrial and residential area. The site is bordered on the west by the Calumet Expressway (I-94), on the north by the Little Calumet River, on the south by the B&O Railroad tracks, and on the east by the Ashland Chemical Facility. From 1949 until 1990, the Cosden facility manufactured a variety of products including formaldehyde, aqua ammonia, hexamethylenetetramine (hexamine), polyethylene emulsion, and polystyrene plastic. Several steel above-ground storage tanks were used to store products and wastes from about 1978 until 1992. Facility records indicate that all wastes generated onsite were sent offsite for treatment, disposal, or recycling; no onsite disposal allegedly occurred. The site is inactive and has been since it was shut down in 1990.

Background

From 1949 until 1990, the Cosden facility manufactured a variety of products, including formaldehyde, aqua ammonia, hexamine, polyethylene emulsion, and polystyrene plastic. From 1949 until 1963, Spencer Chemical Company owned the facility. In 1963, Gulf Oil Corporation purchased the facility. Gulf sold the facility to Cosden in 1968. Cosden Continued manufacturing chemicals until 1970. In 1986, Cosden changed its name to Fina Oil and Chemical Co. (Fina). Fina continued to manufacture polystyrene plastic until 1990. Dismantling of the facility was completed in 1992. During dismantling, machinery was removed for scrap salvage, waste and product storage tanks were emptied, and hazardous wastes and products were removed from the site.

Several steel above-ground storage tanks were used to store products and wastes from about 1978 until 1992. Three 850,000 gallon tanks and one 690,000 gallon tank stored styrene monomer, and one 80,000 gallon tank stored ethylbenzene in areas surrounded by clay berms at the northwestern portion of the site. Two additional steel styrene monomer tanks are located west of the polystyrene process building on concrete containment structures. A 20,000 gallon tank stored a byproduct waste consisting of styrene and ethylbenzene in a bermed area south of the 850,000 gallon styrene tanks. A 10,000 gallon tank with concrete containment stored waste oil near the Little Calumet River at the eastern portion of the site. The blow-down pit, the wastewater treatment system, and two drum storage areas were used to manage other wastes generated onsite.

A consultant hired by the facility conducted investigations of potential contaminants at the site between 1987 and 1990. These investigations included soil vapor monitoring and sampling of soil, groundwater, and surface water.

Soil vapor monitoring was conducted at 48 onsite locations. Elevated levels of styrene and ethylbenzene were detected in or near the drum storage areas, wastewater treatment system, by-product storage tank, and blow-down pit.

Three rounds of soil sampling were conducted. First round analyses found toluene, ethylbenzene, xylene, and styrene at concentrations ranging from 100 to 47,000 parts per billion. Based on these results, approximately a thousand cubic yards of soil were removed, to a depth of 4 feet, from this area located south of the polyethylene building.

#### Human Health Risk Evaluation

In order to evaluate potential human health risk(s) that could be occurring at the site, various exposure pathways were considered. This assessment considers contamination data for soil and sediment and surface water. The chemicals of concern (COC) were identified by scanning the level of contamination by various compounds in the soil, sediment and surface water to determine whether contamination by any of the compounds was high enough to suggest possible human health risk. Exposure to groundwater was considered to be an incomplete pathway due to the assumption that no one is drinking the groundwater.

A screen of soil contamination yielded no COC'S. A screen of surface water contamination yielded no COC'S. A screen of sediment contamination yielded one COC: beryllium. This risk assessment uses the maximum detected level of beryllium in sediment and assumes that an individual is being exposed to this level of contamination. If the individual is exposed equally to all levels of contamination found on site, his risk would be less than that calculated here.

The current exposure pathway is assumed to be trespasser. This assessment assumes that a trespasser would have his hands exposed to sediment 10 days per year for 25 years. A possible future use scenario for the Cosden site would be the conversion of the site to an active industrial facility. In order to calculate risk from this future use scenario, exposure assumptions for a worker are used. Specifically, the risk assessment assumes that a worker would have his hands exposed to sediments 25 days per year for 25 years. These exposure assumptions are likely to be conservative.

Sediment was contaminated with beryllium. Incidental ingestion of sediment was determined to not be a major route of exposure, due to the relatively low level of direct sediment ingestion which is likely to occur. Thus risk from contaminated sediment was calculated using a dermal exposure equation.

Another possible exposure pathway for dirt is dust inhalation. This pathway is not considered in the current assessment primarily due to vegetation in the area and the fact that the site is not frequently trafficked. If, for some reason, dust becomes an issue at the site, it would be advisable to assess this pathway.

## Ecological Evaluation

The preliminary Ecological Assessment provided information based on the concentrations of Chemicals of Potential Concern (COPC) likely to contribute to the potential ecological risks of the site. The results show there is pervasive, but generally low, contamination across the site by a few inorganics: Cd, Cr, and Ni. These elements marginally exceed the lowest levels of concern in the majority of samples in which they are detected. Sample results elevated above potentially severe levels of concern are limited to the western portion of the site, specifically Cd, Cu, Pb and Zn in the soil within the styrene monomer tank berms (SS01, in which chloromethane and acetone are also detected), and Cr, Fe, and DDT/DDD in ditch sediments south of the tanks (ST09 and ST11). Elevated concentrations of inorganics that lack toxicological guidelines occur in similar areas: Ca and Mg near the berms (SS03), Sb in the ditches south of the tanks (ST09 and ST10), and Mn in the drum storage area (SS02) near the aforementioned ditches.

Ca, Mg, and Mn are also nutrients, and are unlikely to present ecological problems in the limited areas where they are elevated. The same applies to the two samples with elevated iron (Fe). Antimony (Sb) is elevated above background in two samples - the ditch (ST10) and the nearby low-lying area (ST09). The potential ecological risks are difficult to evaluate because there is only meager ecotoxicological information for Sb, however, the levels will not cause phytotoxicity (Kabata-Pendias and Pendias 1992). The most sensitive route of exposure for animals appears to be dust inhalation. The site appears to be well-vegetated, so dust exposure is probably minimized.

Some of the detected contaminants appear to be unrelated to the site. Polycyclic aromatic hydrocarbons (PAHs, including fluorene, phenanthrene, anthracene, fluoranthene, and benzo(a)anthracene) exceed the lowest level of concern in 1 river sediment sample (ST01 at the northwest corner of the site), but are not elevated in any of the other sediment or soil samples, with the exception of the background river sediment sample (ST03) northeast of the site. The presence of PAHs in a background sample, and the absence of elevated PAHs in 2 other river sediment samples and all of the on-land samples, indicate that the PAH contamination at ST01 is likely to have originated from off-site activities.

Two other organic substances, phenol and BEHP (bis[2-ethylhexyl]phthalate), exceed the lower benchmarks at one sample each (ST05 and ST04, respectively). BEHP is a common laboratory contaminant, is also detected in the background sample, and is only elevated in a single site sample, so it is not considered further in this assessment.

## Recommendations/Possible Actions

- excavation and disposal of soil within the tank berms.
- No further actions are recommended for this site.

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\* Check RCRA Closure Status  
\* Check FOIA people, see if there is  
any requests from Ashland Chemical.